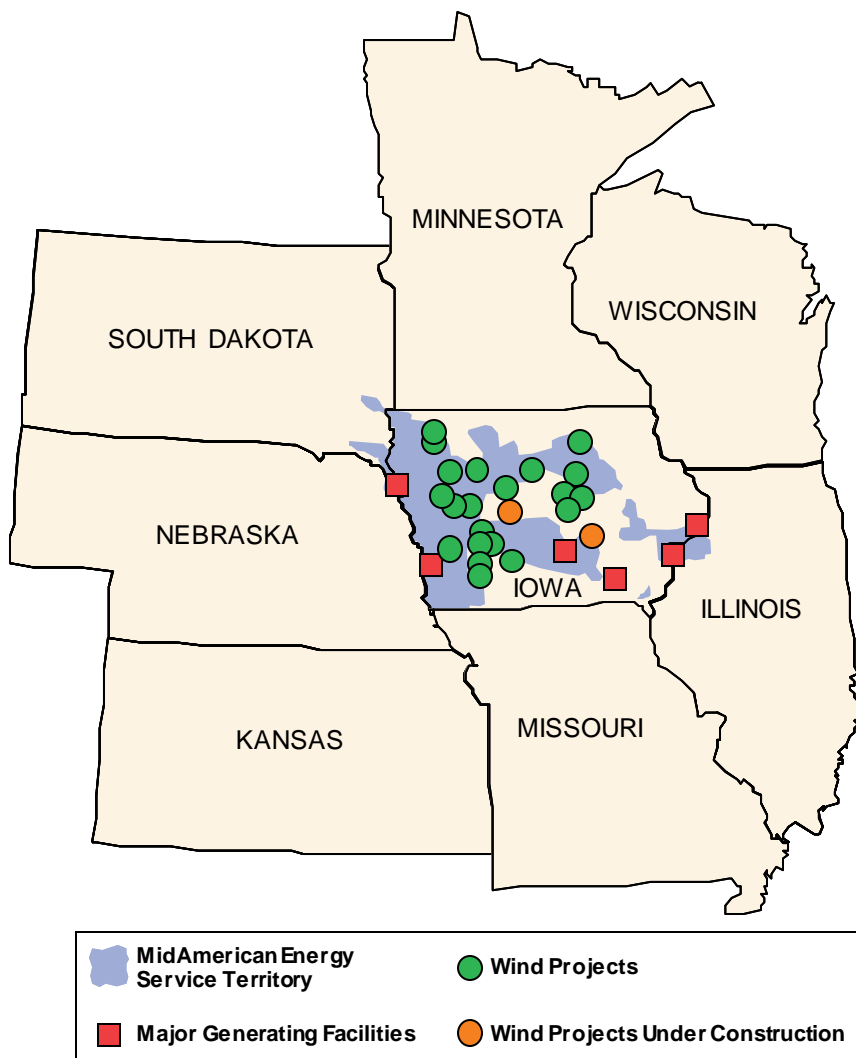




# 2017 Summer Preparedness

Illinois Commerce Commission  
May 9, 2017

# MidAmerican Energy Company Overview



- Headquartered in Des Moines, Iowa
- 3,300 employees
- 1.5 million electric and natural gas customers in four Midwestern states
  - 85,000 electric and 66,000 natural gas customers in Illinois at Dec. 31, 2016
- Illinois service territory is Illinois Quad Cities and surrounding areas
- 388 MW of owned power capacity allocated to Illinois
- Remainder of resources needed to serve Illinois load acquired through Illinois Power Agency procurement process



- Demand and Capability
- Generation Response
- Delivery and Customer Response
- Conclusions

# Total Company Peak Demand



## 2017

- Net peak demand forecast
  - 4,638 MW for normal weather
  - 5,011 MW for worst-case, extreme-weather forecast

## 2016

- Actual net peak demand
  - 4,698 MW on July 21, 2016 (there was a 39.3 MW reduction at the time of the peak due to activation of the direct load control program, the interruptible program was not activated)

## 2011

- All-time net peak demand
  - 4,752 MW on July 19, 2011

# Total Company Reserve Installed Capacity



## 2017

- Normal weather demand: 4,638 MW
  - Reserve capability is 774 MW or 17%
- Extreme weather demand: 5,011 MW
  - Reserve capability is 401 MW or 8%

## 2016

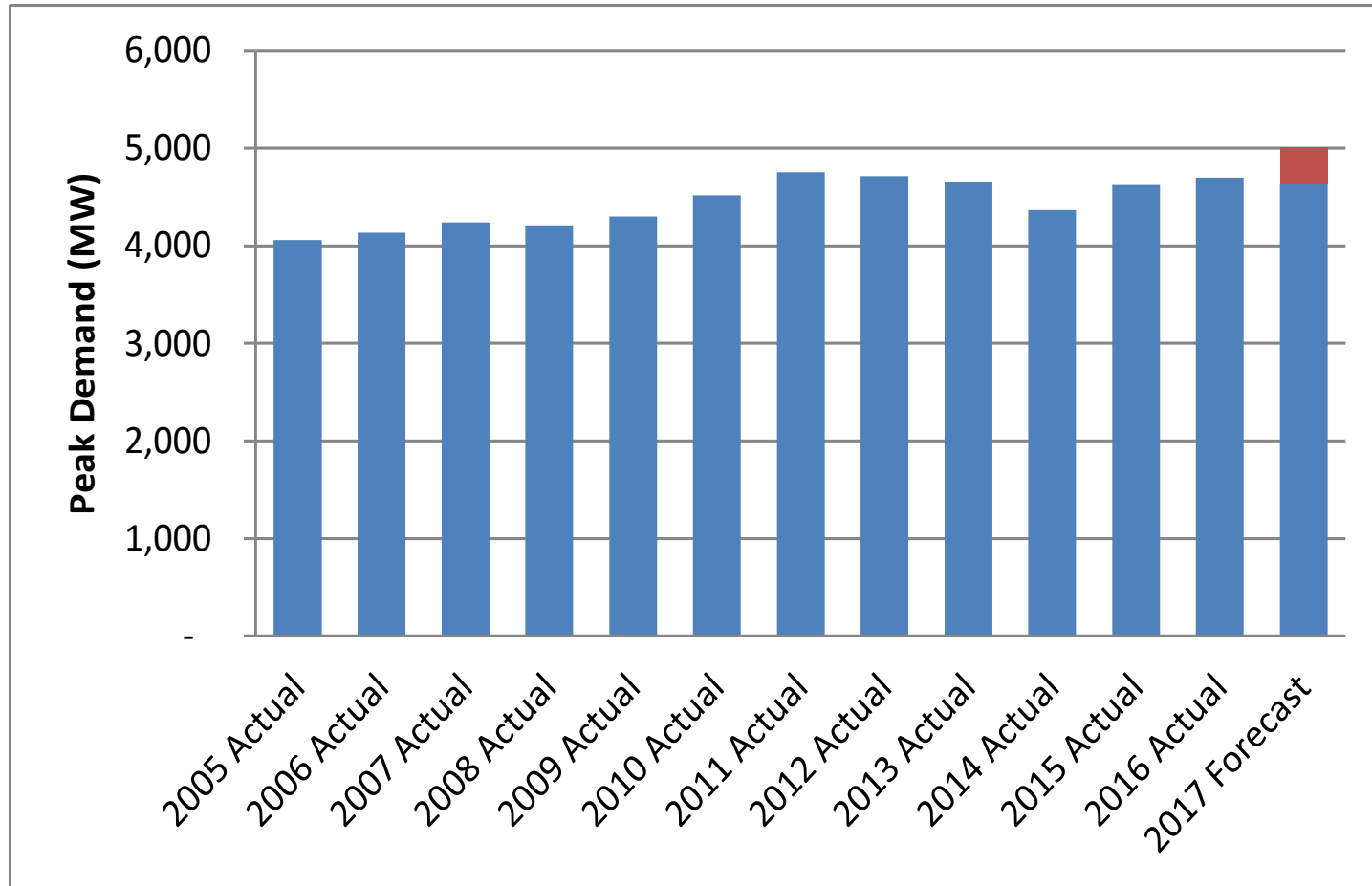
- Actual net peak demand: 4,698 MW
  - Reserve capability was 350 MW or 7%

# Total Company Available Resources



- **Net installed capability: 5,738 MW**
  - Owned generation: 5,307 MW - Coal, gas, nuclear, oil, hydro, and wind at its accredited value
    - Large coal-fired units are jointly-owned with municipals and cooperatives
  - Purchases: 160 MW, including 84 MW through MISO capacity auction for Illinois customers
  - Less sales to other utilities: 50 MW
- **Demand-side management: 321 MW**
  - Direct load control: 44 MW
  - 196 MW interruptible demand
  - 81 MW with backup generation

# Historic Company Peak Demand Forecasts



High 5,011

Normal 4,638

# Transmission Loading



- MidAmerican expects its system to perform well
  - No facilities are expected to load above their rating for normal system conditions
  - No transmission or sub-transmission facilities expected to load above normal ratings for single contingency events
  - Operating procedures would be utilized to prepare for potential issues from certain double contingency events
    - MISO would use congestion management tools including re-dispatching generation and/or calling for transmission loading relief



# Adequate Transmission Capability

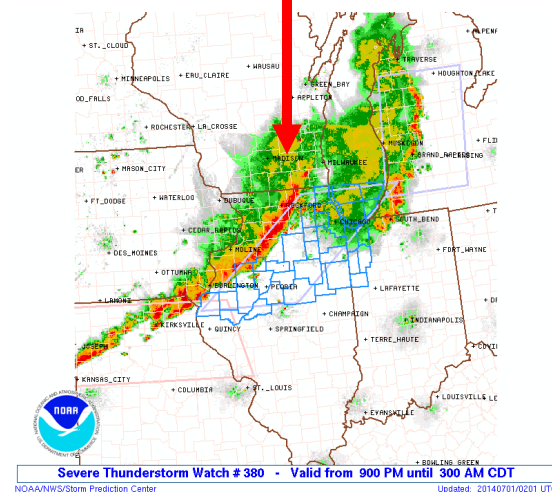
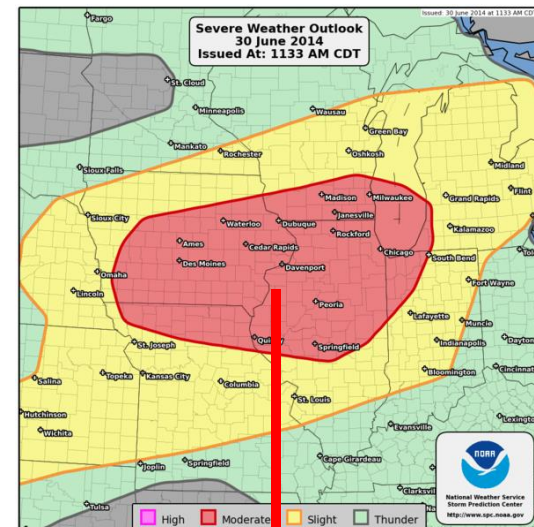


- MidAmerican continues to experience occasions of significant west to east flows across the transmission system
  - Significant transmission expansion is underway in the MISO footprint to accommodate increased renewable generation and energy transfers, including a new 345 kV tie from Iowa to Illinois
  - Phase 1 of the Illinois 345 kV project that improves flows from Iowa to Illinois was placed into service on March 30, 2017, with the remainder of the project expected to be in service by November 2018

# Storm Preparedness



- Daily and extended forecasts monitored for severe weather threats (ice, snow, wind, thunderstorms)
  - Electric system operators monitor radar 24x7
  - Subscribe to additional web-based weather service including real-time lightning activity, storm tracks, and 24x7 access to meteorologist for Midwest area
- When severe weather forecasted, pre-storm calls held to discuss system risks and appropriate measures
  - Contact additional on-call crews, standby crews and remote contract resources
  - Pre-stage resources in areas expected to be most severely impacted



# Storm Response



- Depending upon magnitude and scope of impacts, initiate one or more of the following:
  - Local and remote storm centers opened to dispatch field resources
  - Remote company field resources and contract resources dispatched to impacted areas
  - Wire watchers and wire clearing crews (based on volume of wire down calls)
  - Mutual assistance, Berkshire Hathaway Energy resources requested
- Status calls held throughout event to assess progress, resource needs and to communicate estimated time of restoration
- Post storm reviews/lessons learned conducted after every major storm – policies and procedures updated
- Electric Computer Aided Dispatching
  - Rolled out in 2016 to improve routing and streamline communications of dispatch instructions and restorations

# Outage Communications



- MidAmerican delivers outage communication through a variety of sources:
  - Radio, television and online/digital advertising
  - Social media: safety and real-time outage tips, restoration updates
  - Earned media: safety news releases and live interviews
  - Web communications: safety tips and information, Outage Watch web page
  - Individual outage information via email updates, with enrollment
- *Who to Call* information is provided during outages:
  - Front page of [www.midamericanenergy.com](http://www.midamericanenergy.com)
  - Listed in all news releases and key messages during interviews
  - Frequent posts on social media providing phone numbers and links
- During significant outages and storms, MidAmerican buys real-time advertising to warn of the down-line dangers and who to call if someone encounters a downed line

# Vegetation Management



- Three year trim cycle for distribution system clearances
- Annual electric transmission inspection and remediation program
- Spring and fall bill insert safety messages
- 16.7% of Illinois customer outage minutes in 2016 were tree related (excludes major storm events)
- 9.7% of Illinois customer outage minutes in 2016 were tree related (includes major storm events)
- The top ten 2017 scheduled circuits, relative to tree related outages, were identified and patrolled with identified concerns remediated prior to storm season

# Conclusions



- Load and Capability
  - MidAmerican has reserves even for extreme weather conditions
- MidAmerican coordinates with MISO for normal and emergency resource commitment and dispatching
- Delivery and Customer Response
  - Transmission ratings, operating procedures and contingency planning in place; vegetation management program
  - Computer Aided Dispatching improves efficiency of MidAmerican's storm response

